

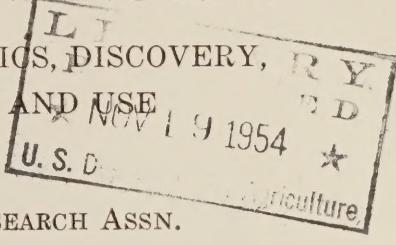
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THE AUGUSTINE ASCENDING ELM

AN ACCOUNT OF ITS CHARACTERISTICS, DISCOVERY,
DEVELOPMENT, REPUTATION AND USE



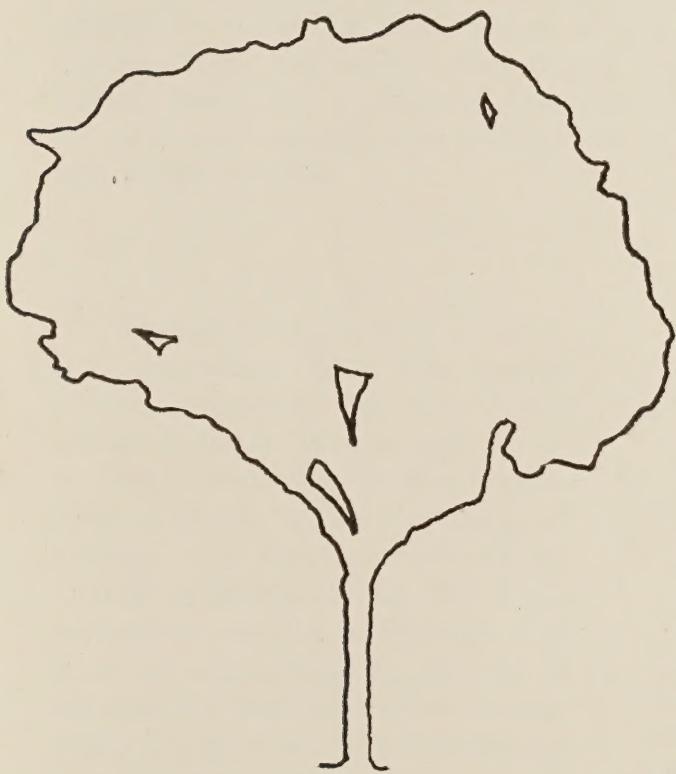
Prepared by:

THE AUGUSTINE ASCENDING ELM RESEARCH ASSN.

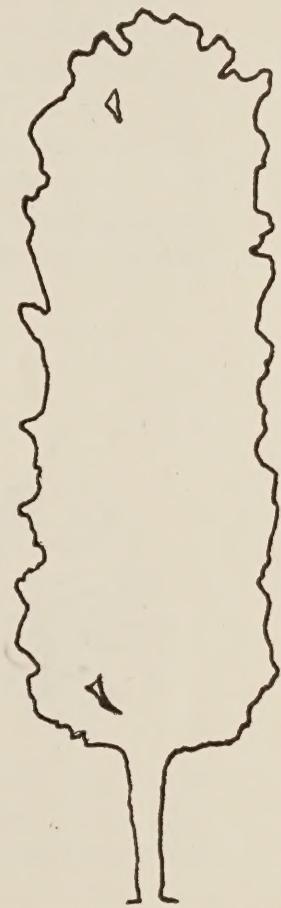
932 East 50th Street

Chicago 15, Illinois

Offer of trees, P. 11



TYPICAL AMERICAN
ELM



AUGUSTINE ASCENDING
ELM



DESCRIPTION

Augustine Ascending Elm is the trademarked name of a mutant or form of American Elm. It differs most strikingly from the typical American Elm in its columnar or, technically, fastigiated form. The lateral branches of the young tree are approximately of the same development and size from tip to base. The older tree develops roughly parallel, wall-like sides, to form a stately, upright column of foliage, in marked contrast to the vase or fountain shape of the typical American Elm. The Augustine Ascending Elm shows a more vigorous growth, stouter twigs, and larger, more deeply toothed leaves (5 to 6 inches) than other varieties of American Elm. It bears no seed, has neat and compact root habits, a strong anchorage, trunk and sturdy crotches.

The identification of the Augustine Ascending Elm was accomplished principally by the United States Forestry Service and Dr. J. M. Beal, Chairman of the Department of Botany at the University of Chicago. The Forestry Service's botanical descriptions and Dr. Beal's cytological studies supported each other in establishing the identity of the tree. Dr. Beal counted 56 chromosomes in a root cell, thus establishing it a tetraploid mutant of the American Elm which latter has 28 chromosomes. The Forestry Service at first agreed on the marked botanical similarities with the Scotch or Wych Elm (*Ulmus glabra*) and also the many divergences from the typical American Elm characteristics, which evidence along with earlier erroneous chromosome counts inclined them to identify the tree as a strain of Wych Elm; but Dr. Beal's definitive count corroborated evidence they later collected.



Dr. Beal's drawing of chromosomes from root cells of Augustine Ascending Elm.

HISTORY

In 1927 a young elm tree, grown from collected seed by the Augustine Nursery, was planted on the front lawn of a home in Normal, Illinois to replace a tree just destroyed by a great storm. The tree was then 2 to 2½ inches in trunk diameter and about five years old. About ten years later the tree was brought to the attention of the late Mr. Archie Augustine, the nurseryman son of its original grower, one of the founders and president of the Illinois State Nurserymen's Association, and in 1929-30 president of the American Association of Nurserymen. Mr. Augustine had long believed that elms, being such ready cross-breeders, one day would be propagated in large numbers only by grafting in order to secure uniform trees for controlled planting. He was immediately struck by the majestic appearance of this tree and realized after close inspection that it was the elm he had been looking for. He cut some scion wood and in his research nursery began to propagate by cuttings, grafts and late budding, attempting to discover the best method to use for quantity production of this type of elm.

He also looked at the parent tree more closely. Dr. Douglas' agriculture class at the University of Illinois, using the tree as a problem in 1947, when it was 25 years old, provided Mr. Augustine with the following measurements:

"Height.....	80 feet
Spread.....	27 feet—straight wall
Trunk circumference.....	7 feet, 3 inches
Diameter.....	2 feet, 4 inches"

(The tree today is 90 feet tall and 30½ inches in trunk diameter.) He discovered that "the tree does not spread its roots as most elms, raises the soil but very little next to trunk, (and) its rooting habit is compact and anchors the tree securely (Augustine letter, April 1, 1947)."

Mr. Augustine had not yet found an opportunity to propagate his new nameless elm in quantity. He continued to grow a few scions (grafts on American Elm) in his own nursery in order to perpetuate his discovery in case anything might happen to the parent tree. He gave a few scions of this newly-discovered elm to friends and arboretums. Two of these early scions, were planted in 1942 on the Normal, Illinois residence of Mr. Harold Goodwin, a manager of the Funk Bros. Seed Company at Bloomington; today these two trees are 16 years old, 35 feet tall, 10 inches in trunk diameter and show, to a striking degree, the identical columnar form of the parent tree.

In 1946 Mr. Augustine approached Mr. William A. Beaudry, Chicago landscape engineer, with a plan to form an incorporated association which would undertake to propagate and distribute the new type elm. The Association was formed of a limited number of friends of the tree and the idea. The tree was named in honor of its founder and its own stately form. In 1947 Mr.

Augustine died, but his shares in the new Association passed on to surviving members of his family, and his plans for developing the Augustine Ascending Elm were pushed forward with energy. Its large scale propagation was undertaken under strictly controlled conditions by Eugene A. de St. Aubin and Bros., who had both the results of Mr. Augustine's long experience in propagation and their own to work with. By February, 1948, 1400 American Elm seedlings had been grafted with Augustine Ascending Elm wood from Normal. Next year 15,000 was set as the propagation goal, and at the present time (August, 1951) 20,000 Augustine Ascending Elms are growing; they include 6-8 foot 2 year, 8-10 foot 3 year, and 1 $\frac{1}{4}$ -1 $\frac{1}{2}$ inch diameter specimens. Each tree shipped bears a permanent copyrighted metal nameplate on which is the registered trademark and a serial number. This enables the Association to keep a careful record of all the Augustine Ascending Elms growing all over the country.

In the meantime sample Augustine Ascending Elms were sent to arborets for permanent professional observation. A partial list of these arborets which have Augustine Ascending Elms follows:

Arnold Arboretum, Boston
Morton Arboretum, Lisle, Illinois
Public Garden, Boston
Missouri Botanical Gardens, Gray Summit, Missouri
West Point Military Academy Cemetery
New York Botanical Gardens, Bronx, New York
Governor's Mansion Grounds, Springfield, Illinois

Trees and leaf samples were sent to research centers for identification and disease-resistance studies; a partial list follows:

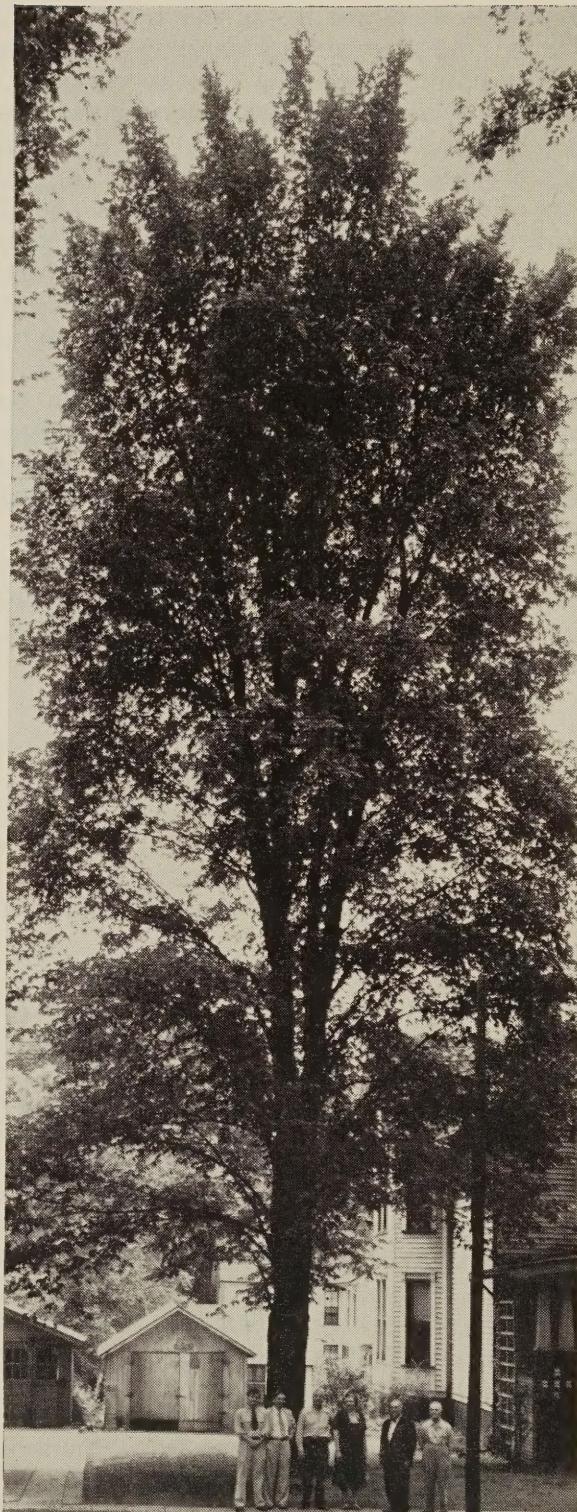
Illinois Natural History Survey, Urbana, Illinois
Department of Botany, University of Chicago
United States Department of Agriculture,
Bureau of Plant Industry, Columbus Ohio
and Beltsville, Maryland
Forestry Service, Washington, D.C.

And Augustine Ascending Elms were sold in quantities. Cities bought them for avenue, street, and park planting: Baltimore has 700 planted on Dorithan Road and Loch Raven Boulevard; New York City has 200; Washington, D. C. has 100; Des Moines has 75; Clayton, Missouri has 50; Wichita has 25. Golf courses bought them; for example, Flint Golf Club in Flint, Michigan has 210, 8-10 foot trees. Country clubs bought them, among which are the Blue Hills Country Club in Kansas City, Missouri and the Brandywine Country Club in Wilmington, Delaware. Cemeteries bought them, among which is Forest Hill Cemetery in Canton, Ohio. The above names and figures are, of course, not at all exhaustive but are meant to show the type of wholesale purchases and the extent of the geographical distribution of Augustine Ascending Elms.

Encouraged by the wholesale buyer's reception of their tree and because larger numbers of trees were now available, the Association decided to offer the Augustine Ascending Elm to the public at large. Accordingly they placed a full-column advertisement in the Chicago Tribune Home section on April 29, 1951. The results were gratifying to the Association, not only because of the quantity of trees purchased but because the response shows that the American public still has a deep attachment for the elm tree and still has great faith in its future.

ELM DISEASE

The American public's continuing faith in and attachment for the elm is remarkable if one considers the amount of paper filled during the last 10 years with accounts of the two main elm plagues in America, Dutch elm disease and phloem necrosis.



*The original Augustine Ascending Elm
at Normal, Illinois*

These two diseases attack the common American Elm, produce symptoms so similar to each other and to other elm

diseases that laboratory tests are necessary to identify them unquestionably, and are both carried by insects. Dutch elm disease is a fungus which was introduced into this country from Europe between 1920 and 1930; since then it has spread from New York and the New England states to the Mississippi, and its carrier, a bark beetle, has been observed as far west as Nebraska. Phloem necrosis, a virus disease, was first noticed in 1938 along the lower and central Ohio River watershed; since then it has spread southward and westward, and its carrier, a leaf-hopper, is observed in Wisconsin and in some eastern states. (For further information see United States Department of Agriculture Circulars No. 640, June 1942; No. 677, July 1943; and Special Circular 80, April 1949.)

Reports of these elm plagues have alarmed America's tree-lovers. But there are many causes for taking heart and for resisting the belief that the old tradition of the elm tree in America is destined to come to an end. Perhaps the most obvious and general of these reasons for encouragement is that the elm is a species which has a history of at least 60 million years. There are geological evidences of the elm species in early Tertiary rocks (i.e., formed about 60,000,000 years ago) in Greenland, and there is some evidence that this species existed even before that in the Upper Cretaceous times. Elm trees inhabited Europe, Western Asia and North America before the Glacial period (more than one million years ago.) During these early pre-glacial times in North America, great elm forests grew on the mid-continental plateau and ranged westward to the shores of the Pacific Ocean (*cf*, Charles S. Sargent, *The Silva of North America*, vol. VII, pp. 40-1 and Frank H. Lamb, *Book of the Broadleaf Trees*, p. 232). It does not seem likely that this ancient tree will pass away in our or our great-grandsons' lifetimes.

Report of elm diseases seem to be exaggerated. The Dutch elm disease was introduced from across the Channel into England long before it was into the United States, and no real attempt was made there to stop its progress except by general sanitation in very limited areas. But the Forestry Commission's Forest Pathologist at the Forest Research Station in Farnham, England wrote us recently that "the damage done by it (i.e., elm disease) has not been as catastrophic as was first expected." So the English, who are noted for their understatement, at first exaggerated elm tree damage. The Principal Pathologist of the U. S. Department of Agriculture's Division of Forest Pathology at Beltsville, Maryland gives this reassuring note in a recent letter to us: ". . . it would seem that there is little likelihood that elms will be entirely killed in Europe by the disease. As in this country, the disease is sporadic, that is, it is severe in some localities but not present at all in others."

Many reports are available of the efficacy of the control measures of local sanitation and spraying (*cf*, U.S.D.A. Circulars, *op. cit.*, No. 677, pp. 10-12; No. 80, p. 8). Also there are reports of the natural recovery of elms once infected by the

Dutch elm disease fungus (*cf.* U.S.D.A. Circular, *op. cit.*, No. 677, p. 10).

The Augustine Ascending Elm shows a resistance to these diseases. Only by repeated graftings of diseased patches of elm wood onto the trunks of young Augustine Ascending Elms, potted and growing in greenhouses, can they be killed. We do not know of a single Augustine Ascending Elm, transplanted successfully from our nursery and growing in the open, which has succumbed to either of these two elm plagues.

In the Spring of 1949, nine young Augustine Ascending Elms were sent to the State Natural History Survey Division at the University of Illinois in Urbana. In the greenhouses they were potted, and an attempt was made to graft onto their trunks wood from elms having phloem necrosis. The grafts did not "take," and the trees continued in a thriving condition. Attempts were made again in July, 1950 to graft diseased wood onto the trees, and one of the trees died. Again in the Fall of 1950 and in the Spring of 1951, the Division tried to graft onto the trunks of the Augustine Ascending Elms; but none of the grafts to this date (August, 1951) have taken, and all the trees are in excellent condition. So the results of these tests are equivocal.

Six young Augustine Ascending Elms in the Spring of 1949 were sent to the United States Department of Agriculture's Bureau of Plant Industry, Division of Forest Pathology, in Columbus, Ohio. In the Spring of the following year, Dutch elm disease resistance tests were started; and in August of the same year, Dr. Roger Swingle, Senior Pathologist, reported that "the Augustine Ascending Elm is susceptible to Dutch elm disease." The particulars of the tests have not been made available to us.

Even if the trees were to be killed by successful grafting of diseased wood onto their trunks, it would not prove that an Augustine Ascending Elm growing in a natural situation had no resistance to disease. For the thick, rough leaf of the Augustine Ascending Elm seems, from the Association's field experience, to be repugnant to insect carriers. But from results of laboratory testing by direct inoculation, we cannot definitely claim that the Augustine Ascending Elm is immune to elm disease. It seems justified, however, to claim for it a resistance to phloem necrosis and to point to field experience for testimony about its resistance to Dutch elm disease.

For letters from the owners of this mutant American Elm testify, without exception, to its vigorous growth and continuing health. It was stated above that not one Augustine Ascending Elm growing in natural conditions is known by the Association to have succumbed to either of the two elm plagues. Evidence of the tree's vigor is given below by quoting passages of letters received from owners of Augustine Ascending Elms.

TESTIMONIES

In the late Autumn of 1949 the City of New York, Department of Parks, received 200, two-year-old Augustine Ascending



*A three-year-old Augustine Ascending Elm.
Its upright character is already noticeable.*

Elms. In September, 1950, the Director of Maintenance and Operation of this Department wrote us the following:

All trees were in good condition when received; the roots were well protected and still moist. The trees were planted in our tree nursery on Riker's Island, the soil consisting of disintegrated garbage and ashes, which had been under cultivation for about ten years.

The trees made a reasonable growth during the past season, but as yet show no evidence of the characteristic upright growing habit of the Augustine Ascending Elm. The leaves average about $2\frac{1}{2}$ inches long and there is no appearance of disease.

In July, 1951, the same official wrote us the following:

After two years of growth, most of these trees are ten feet in height and are in a vigorous condition. The new growth produced this season measures as much as thirty inches. Enclosed you will find some leaves which measure five and one-half to five and three-quarters inches long.

These trees are presently located in our nursery and will be kept there until the trunks measure three to three and one-half inches in caliper, after which they will be set out in our parks and parkways.

An actual-sized outline of one of the leaves which was enclosed in this letter is traced on this page. The trees by this time doubtless show their characteristic up-right form; this form can be seen in the four-year-old trees in our own nursery.

The Trees and Parking Division of the District of Columbia purchased 100, 1 to $1\frac{1}{4}$ inch caliper trees in the Spring of 1950. After less than a year of growth in their new location, the Superintendent of this Division wrote to us in February, 1951.

We are extremely pleased with the growth of trees we purchased in February, 1950. They all look nice and healthy. One hundred were planted on the streets and the only trouble encountered was that several were broken off by children because of their small caliper.

Most cities prefer to plant their Augustine Ascending Elms in their own nurseries when they are as young as the Washington, D. C. trees were and then to transplant them after 2 or 3 years; buying trees young and growing them in city nurseries enables the city to save on the higher costs for larger trees, added freight and labor. However, some cities prefer to plant the two and three year trees directly on the parkways and in the parks, thus eliminating the loss of growth in the year following the second transplanting; an eight-foot white stake or rod, driven into the ground near the tree and tied to it will form a protective reminder and make the tree secure.

Replying to a request in 1950 for a report on the progress of the 700 young Augustine Ascending Elms (the first shipment of 100— $1\frac{1}{4}$ " caliper trees was in November, 1949) in Baltimore,

the Department of Recreation and Parks wrote the following:

On September 12th you asked for a report on the Augustine Ascending Elm trees purchased by the City of Baltimore.

The first planting of your elm trees was made in November of 1949. We have also planted in the spring and fall of 1950.

The trees were received in excellent condition on each shipment.

We have lost only 1 Augustine Elm tree due to plant failure although a number have been damaged beyond repair by vandalism.

The trees have shown normal rate of growth for elm trees with all indications of developing an upright habit. The leaves are normal in size, color, and shape. No test or inspection has been made to determine extent of root anchorage and the crotches are not developed to a point where the characteristics can be judged.

We have not planted Augustine Elms in contact with infected trees due to the fact that all of the trees are going into newly planted street and parkway areas.

To date we have planted Augustine Elm trees on the 3200-3300-3400 blocks of Dorithan Road and Loch Raven Blvd. from Chinquapin Run to Woodbourne Avenue.

An official of the Morton Arboretum at Lisle, Illinois gives, in a report of July, 1951, the following information about the four-year-old Augustine Ascending Elms there:

Height—10 ft.; average leaf size—4 to 5 inches; no virus or fungus disease; development of characteristic form; trees vigorous in appearance and making good growth. Foliage a rich dark green.

Michigan State College reported in July, 1951 that the 25 four-year-old trees on their campus were 12 feet high, had an 8-inch growth during the last season, and have an average leaf length of 5-inches.

A managing official of the Arboretum of the Missouri Botanical Garden wrote us the following letter in October, 1950:

The plant (i.e., the two-year-old Augustine Ascending Elm sent to the Arboretum in 1949) was received in good condition and has grown well. It was planted along one of our oldest roads—an area that has supported trees for about a century. It continues to be upright and while outside the area of greatest Phloem Necrosis damage a number of elms within sight of this tree have died in the past two years. So far it appears to be a perfectly good tree for this region.

An official on the Glencoe, Illinois Park District wrote in September, 1950:

I have recently inspected the trees and find that they have adjusted themselves very well to their new location, and have noted that there is normal growth of approximately 3-inches on these trees during their first year (this reduced growth is normal in the year following transplanting a young tree).

The same official wrote in July, 1951:

I made a personal inspection of them today and find that they are in excellent condition and are showing every indication of a better than average growth during the last two growing seasons. They were planted in quite heavy soil and showed no signs of transplanting shock, and as of this date have not been bothered with cankerworm or other pests of which we had an abundance this spring.

The above quotations are submitted as evidence to support our many claims for the Augustine Ascending Elm; the sections of the letters given are printed without deletions or alterations, and the complete originals can be inspected at our Chicago office.

SUITABILITY

At the beginning of his chapter on "Trees of the Upright Habit" in *Aristocrats of the Trees*, Ernest H. Wilson, the late Keeper of the Arnold Arboretum at Harvard University, wrote:

Trees of the upright habit have a decided value in garden landscaping. They relieve low monotonous lines of vegetation and enhance by contrast the beauty and characteristics of other and different types of growth. They add grace and lightness when sparsely associated with round-topped trees and they may be associated to advantage with buildings. Some, like the Lombardy Poplar, are well adapted for planting in narrow streets or by bridges, or walls where they tower to excellent advantage. There may be an air of austerity or even rigid sternness about them but one upright branched tree stirs the emotions much in the same manner as does a fine church spire. Rightly placed and rightly used they are most useful in garden art.

If Mr. Wilson could write this chapter today instead of in 1930, it doubtless would include among the American fastigiated trees the Augustine Ascending Elm; and the paragraph quoted above would well describe this new Elm's virtues and uses.

The Augustine Ascending Elm is suited for street and avenue planting, generally, because of its health, rapid growth and strength; and, particularly, because a line of these trees will grow uniformly and develop quite a similar, neatly-outlined shapes to form a regular, high surface of foliage; because it does not have wide over-hanging branches, the Augustine Ascending Elm does not throw such an extended dense shadow as will kill

grass near the trunk. Because the branches grow upward at small angles with the vertical, because the crotches of these branches are unusually sturdy, and because its root habits anchor the tree well, the Augustine Ascending Elm withstands the severest ice, sleet, rain and wind conditions. The soil is not likely to be raised around the tree's base; and since the big roots go down instead of spreading along the surface of the ground, this elm can be planted in parkways without the expectation that great horizontal roots will raise and crack the adjacent sidewalks and curbings.

The Augustine Ascending Elm is particularly suitable for golf courses because rows of them form fine walls for fairway borders. Since the Elm is tall and is slender enough to permit planting as close together as 15 feet, a row of them creates a lofty and dense fairway border which will discourage those golfers who are tempted to take short-cuts.

And for this same reason, the Augustine Ascending Elm is suitable for enclosing areas for any practical or esthetic reason. The strong, high and dense walls which can be created with rows of this tree will shield an area from winds. As a border to a garden or estate they grow to make a rich green wall which insures privacy and creates that feeling of separation and retirement in many instances so desireable.

The slender, rising, tower-like form makes it suitable for cemetery planting and wherever an inspirational and spiritual effect is desired.

Planted singly, the Augustine Ascending Elm's slender form can be used to create effects of contrast with spreading shrubs and lower trees in gardens and estate grounds. It can be planted at intervals among other trees to give, when desired, an irregularity of outline in an otherwise monotonous and even line of trees.

* * *

Augustine Ascending Elms can be obtained, both in carload lots and in smaller quantities, by ordering through our Chicago office, the address of which appears below. Shipping is from Elmhurst, Illinois. Each tree shipped out bears a serial number on a metal tag. Also attached to each tree is a shipping tag with planting instructions and a Certificate of Examination by the State of Illinois Department of Agriculture. This Certificate of Examination has satisfied all state agriculture border examiners except those of California, where a law forbidding entry of any plant material is inforced.

For further information about the Augustine Ascending Elm, for special advice about particular tree problems, and for quotations of price and availability, write to:

AUGUSTINE ASCENDING ELM RESEARCH ASSN., INC.
932 EAST 50TH STREET
CHICAGO 15, ILLINOIS

